

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 0000055403	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/EP2005/002288	International filing date ( <i>day/month/year</i> ) 04 March 2005 (04.03.2005)	Priority date ( <i>day/month/year</i> ) 08 March 2004 (08.03.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BASF AKTIENGESELLSCHAFT		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 01 November 2006 (01.11.2006)
Facsimile No. +41 22 338 82 70	Authorized officer <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Yolaine Cussac</div> e-mail: pt11@wipo.int



# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing **See form PCT/ISA/210**  
(day/month/year)

Applicant's or agent's file reference  
**0000055403**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No. <b>PCT/EP2005/002288</b>	International filing date (day/month/year) <b>04.03.2005</b>	Priority date (day/month/year) <b>08.03.2004</b>
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International Patent Classification (IPC) or both national classification and IPC  
**C07C45/00, C07C47/21**

Applicant  
**BASF AKTIENGESELLSCHAFT**

1. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Authorized officer
Facsimile No.	Telephone No.



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2005/002288

Box No. I

Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language  
\_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:



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**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**1. Statement**

Novelty (N)	Claims	3-5, 11	YES
	Claims	1, 2, 6-10, 12, 13	NO
Inventive step (IS)	Claims		YES
	Claims	1-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

**2. Citations and explanations:**

**1. Reference is made to the following documents:**

D1: M.J. DOEVRE: BULLETIN DE LA SOCIETE CHIMIQUE DE FRANCE, vol. 45, 1929, pages 1098-1107, XP008048011

D2: EP-A-1 225 163 (TAKASAGO INTERNATIONAL CORP.)  
24 July 2002

D3: WO 97/33853 A (BASF) 18 September 1997

**2. Novelty**

2.1 Document D1 describes (see page 1100 to 1101, d-Citronellal à partir du d-Citronellol, and page 1104 to 1106, l-rhodinal Barbier et Bouveault) the preparation of the optically active aldehydes d-citronellal and l-rhodinal by catalytic dehydrogenation of the corresponding alcohols in the presence of copper as catalyst. From the reaction conditions, which are described more precisely for l-rhodinal (220°C at 10 torr), it is possible to infer a reaction in the gas phase.





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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

The subject matter of claims 1, 2, 6-10 is thus not novel (PCT Article 33(2)).

2.2 In claims 12 and 13, the citronellal is defined by the nature of its preparation. The current formulation does not represent novelty over the known preparation of menthol from citronellal (see D2) or the use of citronellal in this regard.

The subject matter of claims 12 and 13 is therefore likewise not novel (PCT Article 33(2)).

Process claim 12 could, for example, be reformulated so that the preparation of citronellal according to claim 1 to 11 is explicitly contained.

2.3 The subject matter of dependent claims 3-5 and 11 is novel (PCT Article 33(2)) over the prior art D1 to D2.

3. Inventive step

3.1 Even following possible restoration of the novelty of claim 1 over the prior art, an inventive step could only be acknowledged if, through representative examples, a surprising technical effect can be shown which is expected over the entire scope of the claim.

In the present case, for example, a combination of the current claims 1, 3, 7 and 11, which include the preparation of racemization-endangered aldehydes at



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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

comparatively high temperature using a specific catalyst, could be considered inventive since loss of optical activity can be avoided (see the example according to the invention).

By contrast, taken by themselves, individual dependent claims 3 to 5 and 11 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for inventive step.

Thus, for example, it is obvious for a person skilled in the art, for synthesizing optically active aldehydes whose stereocentre is further removed from the formed aldehyde group than the  $\beta$ -position and in which thus no racemization through enolization or interim  $\alpha\beta$  unsaturation is to be feared, to also use the method known from document D3.

3.2 The preparation of menthol from citronellal is a known synthesis sequence (see e.g. D2). The subject matter of claim 12 can therefore only be considered inventive if it contains an inventive process for the preparation of citronellal.



WRITTEN OPINION OF THE  
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Box No. VIII      Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 10 is not clear (PCT Article 6) since only the aim to be achieved (low racemization) is defined, but the required technical features are missing.

